

Review Comments
Stormwater Source Control Evaluation Report
Calbag Metals Company Facilities
2495 NW Nicolai Street, Portland, Oregon
Oregon DEQ ECSI Site 5059 and
2500 NW Nicolai Street, Portland, Oregon
Oregon DEQ ECSI Site 5238
Dated July 31, 2014

Submitted June 26, 2015

Following are the United States Environmental Protection Agency's (EPA) comments on the July 31, 2014 document entitled, Stormwater Source Control Evaluation Report Calbag Metals Company Facilities 2495 NW Nicolai Street, Portland, Oregon, Oregon DEQ ECSI Site 5059 and 2500 NW Nicolai Street, Portland, Oregon, Oregon DEQ ECSI Site 5238 (SCE report) prepared by GeoPro LLC. The site is located at approximate River Mile 10.1west (RM 10.1W).

EPA understands the objectives of the stormwater SCE were to demonstrate that existing and potential sources of contamination at ECSI Sites 5059 and 5238 have been mitigated and no additional source characterization or source control measures are needed.

EPA's review and subsequent comments are focused on the July 31, 2014 SCE report. Notably there were other documents referenced in the report that, if available, could provide additional background information that may revise our comments below.

General Comments

1. Based on the information presented in the SCE report, Calbag has implemented extensive stormwater source control measures within the drainage areas (Drainage Area 3 and 4) which serve highly industrial uses at the site. The source controls include sweeping and catch basin cleanouts. In addition, the site utilizes a treatment train concept by implementing multiple stormwater components deployed in series. While EPA generally finds the stormwater source controls sufficient, there are still some concerns with certain constituents (e.g., metals) due to exceedance of source control preliminary remediation goals (PRGs). As a result, ongoing stormwater monitoring and BMP implementation are required to minimize the discharge of site contaminants to the Willamette River at levels that may pose a risk to human health or the environment. EPA notes that these recommendations are consistent with the summary findings of DEQ's annual report, dated November 2014.
2. EPA understands that stormwater samples were collected in accordance with the facility's 1200-Z permit; however, EPA finds that there is still considerable uncertainty in the sampling results with regard to stormwater screening evaluations and assessing the effectiveness of

source control measures. The sampling data indicates that certain metals in the effluent from the Drainage Area 3 stormwater treatment system continue to exceed source control PRGs. The SCE report recommends continued stormwater monitoring of the stormwater treatment system and BMP effectiveness for cadmium, copper, and lead. The SCE report states that nickel “*may warrant further evaluation of current treatment and/or BMPs to effectively control concentrations of nickel in runoff.*” The SCE report recommends, “*no further source control measures for certain constituents (e.g., arsenic, Bis(2-Ethylhexyl)phthalate, chromium, mercury, silver, total PAHs, total PCBs, TSS, and zinc).* However, these chemical exceed JSCS source control criteria and Portland Harbor source control PRGs. As a result, EPA recommends that these constituents be included in the ongoing monitoring consistent with the sampling criteria specified in the *Guidance for Evaluating the Stormwater Pathway at Upland Sites* (Appendix A) guidance document prepared by DEQ. Additional monitoring data should be statistically analyzed to compare mean concentrations to SLVs. The SCE includes sampling results from samples that may not meet the Joint Source Control Strategy (JSCS) sampling criteria and are too uncertain to support conclusions on discrete storm event concentrations, trends, and SCM effectiveness as presented in the SCE Report. Refer to Specific Comment 3 below for more information.

Specific Comments

1. Section 3.2.1 Drainage Areas,
 - a. Drainage Area DA3, Page 18: A description of the Aquip sand filter stormwater treatment system should be provided in this section or elsewhere. This description should include the effective size of the filter media and targeted pollutants. Sand filters are effective for removing suspended solids and pollutants associated with solids. Filters are less effective at removing dissolved constituents including metals. Potential modifications of the treatment system to include adsorptive media should be evaluated since this would likely reduce concentrations of metals such as copper, cadmium, lead and nickel in stormwater discharged to the Willamette River.
 - b. This section and/or section 4.2 should be expanded to identify the CSO separation project in sufficient detail to understand under what conditions site stormwater actually reaches the Willamette River. The discussion in Section 3.2 is limited to the site drainage areas and Figures 2 and 3 are equally limited. While there is some discussion in Section 4.2, it does not discuss with sufficient details. See the note on Figures 2 and 3 regarding discharge of stormwater to the Willamette River.
2. Section 5 Ongoing Stormwater Management Measures, Debris Control, Page 54: Additional information should be provided regarding the CleanWay catch basin inserts in use at the Calbag site. This should include a description of the captured sediment size ranges, operation requirements, solids storage capacities, and bypass capabilities. This information should be used to assess BMP effectiveness and correct implementation.
3. Section 6.2 Stormwater Sampling, Page 58:

- a. A description of the stormwater sampling procedures and monitored storm event characteristics should be provided in this section. Appendix D of the Portland Harbor Joint Source Control Strategy (JSCS) recommends that at least four separate storm events per year be sampled and that two of these events be representative of “first flush” conditions (i.e. within the first 30 minutes of stormwater discharge). The JSCS guidance also specifies that sampled storm events should have a minimum rainfall total of 0.2 inches, a minimum storm event duration of three hours, and an antecedent dry period of at least 24 hours. Figures 8A through 8H of the SCE Report depict the timing of sample collection relative to the onset of flow, but it is difficult to discern whether samples were collected during the first 30 minutes of stormwater discharge and whether sampled storm events met JSCS criteria. Additional storm event sampling information is needed to evaluate the overall representativeness of analytical results and determine whether the conclusions presented in the SCE Report are warranted.
 - b. The DEQ SCE stormwater charts presented in Figures 7A through 7M show elevated concentrations of cadmium, copper, lead, and nickel relative to typical industrial stormwater discharges. Additional source control measures and/or treatment system improvements should be evaluated to achieve further reductions of metal concentrations. The sampling and analysis should consider dissolved fractions of metals and compare to the recently available PRGs for evaluating protection of the Willamette River.
4. Section 8.1 Data Evaluation, Page 69: This section of the SCE Report states that the implemented BMP have “*significantly reduced concentrations of contaminants*” over the past two to three years. The term “significant” should generally be reserved for more rigorous statistical evaluations and is not appropriate for the analysis presented. The observed trends in Figures 9 and 10 may be skewed by environmental factors (as described in Specific Comment 6 below) and EPA cannot confirm this finding.
5. Figure 6: The cause of changes in groundwater flow indicated in Figure 6 needs further explanation. Arrows on Figure 6 indicate east, west, and southwest groundwater flow directions, changing over short distances and the SCE report provides no explanation for these changes in flow direction. As currently depicted in Figure 6, the groundwater elevation contours suggest localized groundwater mounding centered on the Drainage Area 3 stormwater treatment system and centered on MW-2. The mounding may be related to a release of stormwater to the subsurface at DA3. This potential source contamination to groundwater needs further evaluation in the SCE report.
6. Figures 9 and 10:
 - a. These figures are misleading as they suggest continuity in the concentrations between sampling points, which is not the case. Scatter plots should be used and the linear trend line should include regression results for ‘goodness of fit’ (e.g., R-square). In general, the results are very noisy which is typical of stormwater discharges. Generalizing significant reductions in pollutant concentrations may be premature.

- b. These plots are used in the SCE Report to demonstrate that pollutant concentrations are decreasing over time. However, pollutant concentrations in stormwater can be highly variable and are impacted by factors such as event precipitation, precipitation intensity, stormwater discharge rates, antecedent conditions, etc. The implementation of Source Control Measures (SCM) at Calbag may be improving the quality of stormwater discharges, but trend analyses are not appropriate given the limited data and sampling event information provided.